

### ABSTRACT

Processes, methods and apparatus relating to olefin oligomerization include the use of Raman spectrometry to monitor the concentration of reactants, products or other chemical components. One or more oligomerization conditions are adjusted in response to those monitored concentrations. The present processes, methods and 5 apparatus are capable of monitoring olefin oligomerization with the use of low resolution Raman spectrometry equipment, even where there is some degree of overlap between Raman spectral peaks. Apparatus for olefin oligomerization reactions have at least one Raman probe located in the oligomerization equipment, the Raman probe providing an output signal, and Raman spectrometry equipment located 10 outside the oligomerization equipment and operatively connected to at least one Raman probe.